

***Allowable Subject Matter***

1. The indicated allowability of claim 16 is withdrawn in view of the newly discovered reference(s) to Jiang et al (The Spatial Gradient of Visual Masking by Object Substitution, 2001). Rejections based on the newly cited reference(s) follow.

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-4, 6, 7, 9, 11-15 and 17-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Teicher et al (2004/0002636 A1) in view of Roenker (5,801,810) in view of Jiang et al (The Spatial Gradient of Visual Masking by Object Substitution, 2001).

Teicher et al disclose a means for diagnosing akathisia and further disclose presenting a visual test stimulus to the user for a predetermined test stimulus exposure duration; measuring a response from the user, the response providing information about a response time taken for the user to respond; repeating the steps to develop a user profile; calculating for each predetermined test stimulus exposure duration, a representative error rate that represents a proportion of measured responses that are inaccurate; calculating the error rate comprises calculating a mean error for each response (the calculated percentage is a mean error rate); calculating a means

response time for each stimulus duration; repetitions of the stimulus exposure are separated by a uniform time interval; one of two or more different stimuli are presented to the user; and each of the test stimuli are presented an equal number of times. See Paragraphs 0022 and 0030.

Teicher et al however fail to disclose masking the test stimulus by placing a mask over or in place of the entire test stimulus; providing information about the user's perception of a characteristic of the test stimulus; comparing the user profile to a reference profile and assessing cognitive impairment or visual impairment of the user; repeating the stimulus exposures for a range of predetermined exposure durations; presenting a focal point stimulus to the user before presenting the visual test stimulus; the predetermined exposure duration is between 10 ms and 300 ms; the user has a choice of two different responses for responding to each test stimulus; and a focal point presentation means for presenting a focal point stimulus to the user.

Roenker discloses a means for testing visual attention capabilities of a subject and further discloses masking the test stimulus by placing a mask over or in place of the entire test stimulus; providing information about the user's perception of a characteristic of the test stimulus; comparing the user profile to a reference profile and assessing cognitive impairment or visual impairment of the user; repeating the stimulus exposures for a range of predetermined exposure durations; presenting a focal point stimulus to the user before presenting the visual test stimulus; the predetermined exposure duration is between 10 ms and 300 ms; the user has a choice of two different responses for

responding to each test stimulus; and a focal point presentation means for presenting a focal point stimulus to the user. See Column 4, lines 20-58; and Column 6, lines 20-54.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the means of Teicher et al to include the use of a mask and comparing the acquired results to a reference, as per the teachings of Roenker, since it would provide a means of controlling the test stimulus exposure to the test subject, to acquire an accurate means of determining the response time. It also would have been obvious to one of ordinary skill in the art to present the test stimuli an equal number of times, since it would provide a means of determining an accurate average response from the application of the test stimuli.

Teicher et al and Roenker however fail to disclose the mask is comprised of an image having at least one filled circle.

Jiang et al disclose a means for applying a mask to a visual stimulus and further disclose the mask is comprised of an image having at least one filled circle. See Introduction, 3<sup>rd</sup> and 4<sup>th</sup> paragraphs; and 2.1 Method.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination of Teicher et al and Roenker to include the use of a mask comprised of at least one filled circle, as per the teachings of Jiang et al, since a filled circle would not have the same contour as the test stimulus and thus prevent a contour interaction between the test stimulus and the mask to provide more accurate results from the test subject.

4. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Teicher et al (2004/0002636 A1), Roenker (5,801,810) and Jiang et al (The Spatial Gradient of Visual Masking by Object Substitution, 2001) as applied to claim 1 above, and further in view of Hongo et al (5,345,944).

Teicher et al, Roenker and Jiang et al, as discussed above, provide a means for measuring responses to a visual stimulus and outputting the measurements, but fail to explicitly disclose an error rate curve chart representing the error rate.

Hongo et al disclose a means for medical diagnosis and further disclose an error rate curve chart representing the error rate. See Figure 11.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination of Teicher et al, Roenker and Jiang et al to include the use of an error rate curve, as per the teachings of Hongo et al, since it would provide an alternative means of outputting the information for expert analysis.

5. Claims 8 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Teicher et al (2004/0002636 A1), Roenker (5,801,810) and Jiang et al (The Spatial Gradient of Visual Masking by Object Substitution, 2001) as applied to claims 1 and 22 above, and further in view of Harrison et al (6,317,128 B1).

Teicher et al, Roenker and Kiang et al, as discussed above, disclose a means for measuring responses to a visual stimulus and outputting the measurements but fail to explicitly disclose a response rate curve.

Harrison et al disclose a graphical user interface and further disclose the use of a response rate curve. See Figure 12.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination of Teicher et al, Roenker and Jiang et al to include the use of a response rate curve, as per the teachings of Harrison et al, since it would provide an alternative means of outputting the information for expert analysis.

6. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Teicher et al (2004/0002636 A1), Roenker (5,801,810) and Jiang et al (The Spatial Gradient of Visual Masking by Object Substitution, 2001) as applied to claim 1 above, and further in view of Polat et al (6,876,758 B1).

Teicher et al, Roenker and Jiang et al, as discussed above, disclose a means for measuring responses to a visual stimulus and comparing the results to a reference, but fail to disclose the reference profile is generated from data that are selected from the group consisting of data obtained from a reference group comprising cognitively normal individuals and data previously generated by the user.

Polat et al disclose a means for improving a user's visual perception and further disclose the reference profile is generated from data that are selected from the group consisting of data obtained from a reference group comprising cognitively normal individuals and data previously generated by the user. See Column 9, lines 22-30.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination of Teicher et al, Roenker and Jiang et al to include the use of data obtained from a reference group comprising normal individuals, as per the teachings of Polat et al, since it would provide a means of

comparison between the acquired results and results from normal people to determine if the user is suffering from any cognitive impairment.

7. Claims 1, 2, 3, 9-15 and 17-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Polat et al (6,876,758 B1) in view of Roenker (5,801,810) in view of Jiang et al (The Spatial Gradient of Visual Masking by Object Substitution, 2001).

Polat et al, as discussed above, disclose a means for improving a user's visual perception and further disclose presenting a visual test stimulus to the user for a predetermined test stimulus exposure duration; measuring a response from the user, the response providing information about the user's perception of a characteristic of the stimulus, and a response time taken for the user to respond; repeating the steps to develop a user profile; comparing the user profile to a reference profile; repeating the steps for a range of predetermined test stimulus exposure durations; the repetitions are separated by a uniform time interval; the reference profile is generated from data that are selected from the group consisting of data obtained from a reference group comprising cognitively normal individuals and data previously generated by the user; the user has a choice of two different responses for responding to each test stimulus; one of two or more different test stimuli are presented to the user; each of the test stimuli are presented to the user an equal number of times; and a processing means for processing the response from the user to develop a user profile. See Column 5, lines 3-7 and 21-23; Column 6, lines 1-17; Column 9, lines 22-30; and Column 12, lines 33-57.

Polat et al however fail to disclose masking the test stimulus by placing a mask over or in place of the entire visual test stimulus; presenting a focal point stimulus to the

user before presenting the visual test stimulus to the user; the predetermined test stimulus exposure duration is between 10 ms and 300 ms; the mask comprises at least one curved line; and a focal point presentation means for presenting a focal point stimulus to the user.

Roemaker, as discussed above, discloses a means for testing visual attention capabilities of a person and further discloses masking the test stimulus by placing a mask over or in place of the entire visual test stimulus; presenting a focal point stimulus to the user before presenting the visual test stimulus to the user; the predetermined test stimulus exposure duration is between 10 ms and 300 ms; the mask comprises at least one curved line; and a focal point presentation means for presenting a focal point stimulus to the user. See Column 4, lines 20-58; and Column 6, lines 20-54.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the means of Polat et al to include the use of a mask, as per the teachings of Roemaker, since it would provide a means of controlling the test stimulus exposure to the test subject, to acquire an accurate means of determining the response time.

Polat et al and Roemaker however fail to disclose the mask is comprised of an image having at least one filled circle.

Jiang et al disclose a means for applying a mask to a visual stimulus and further disclose the mask is comprised of an image having at least one filled circle. See Introduction, 3<sup>rd</sup> and 4<sup>th</sup> paragraphs; and 2.1 Method.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination of Polat et al and Roenker to include the use of a mask comprised of at least one filled circle, as per the teachings of Jiang et al, since a filled circle would not have the same contour as the test stimulus and thus prevent a contour interaction between the test stimulus and the mask to provide more accurate results from the test subject.

8. Claims 4, 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Polat et al (6,876,758 B1), Roenker (5,801,810) and Jiang et al (The Spatial Gradient of Visual Masking by Object Substitution, 2001) as applied to claim 1 above, and further in view of Teicher et al (2004/0002636 A1).

Polat et al, Roenker and Jiang et al, as discussed above, disclose a means for assessing impairment of a user, but fail to disclose calculating for each stimulus exposure duration an error rate that represents a proportion of responses which are inaccurate; the error rate comprises calculating a mean error (the calculated percentage represents a mean error); and calculating a mean response time.

Teicher et al, as discussed above, disclose a means for diagnosing akathisia and further disclose calculating for each stimulus exposure duration an error rate that represents a proportion of responses which are inaccurate; the error rate comprises calculating a mean error (the calculated percentage represents a mean error); and calculating a mean response time. See Paragraphs 0022 and 0030.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination of Polat et al, Roenker and Jiang et al to



include the calculation of a mean error rate, and a mean response time, as per the teachings of Teicher et al, since it would provide a means of determining the average error rate and response time for a plurality of test stimuli, to help diagnose visual or cognitive problems.

9. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Polat et al (6,876,758 B1), Roenker (5,801,810) and Jiang et al (The Spatial Gradient of Visual Masking by Object Substitution, 2001) as applied to claim 1 above, and further in view of Hongo et al (5,345,944).

Polat et al, Roenker and Jiang et al, as discussed above, disclose a means for assessing impairment of a user and providing an output, but fail to disclose an error rate curve.

Hongo et al, as discussed above, disclose a means for medical diagnosis and further disclose an error rate curve. See Figure 11.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination of Polat et al, Roenker and Jiang et al to include the use of an error rate curve, as per the teachings of Hongo et al, since it would provide an alternative means of outputting the acquired information regarding the error rate to an expert for analysis.

10. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Polat et al (6,876,758 B1), Roenker (5,801,810), Jiang et al (The Spatial Gradient of Visual Masking by Object Substitution, 2001) and Teicher et al (2004/0002636 A1) as applied to claim 7 above, and further in view of Harrison et al (6,317,128 B1).

Polat et al, Roenker, Jiang et al and Teicher et al, as discussed above, disclose a means for testing a user to provide a medical diagnosis but fail to disclose a response rate curve.

Harrison et al, as discussed above, disclose a graphical user interface and further disclose a response rate curve. See Figure 12.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination of Polat et al, Roenker, Jiang et al and Teicher et al to include the use of a response rate curve, as per the teachings of Harrison et al, since it would provide an alternative means of outputting the acquired information regarding the response rate to an expert for analysis.

11. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Polat et al (6,876,758 B1), Roenker (5,801,810) and Jiang et al (The Spatial Gradient of Visual Masking by Object Substitution, 2001) as applied to claim 1, 18 or 20 above, and further in view of Harrison et al (6,317,128 B1).

Polat et al, Roenker and Jiang et al, as discussed above, disclose a means for testing a user to provide a medical diagnosis but fail to disclose a response rate curve.

Harrison et al, as discussed above, disclose a graphical user interface and further disclose a response rate curve. See Figure 12.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination of Polat et al, Roenker and Jiang et al to include the use of a response curve, as per the teachings of Harrison et al, since it

would provide an alternative means of outputting the acquired information regarding the response to an expert for analysis.

### ***Response to Arguments***

12. Applicant's arguments with respect to claims 1-14, 16 and 18-25 have been considered but are moot in view of the new ground(s) of rejection.

While the above rejection is based on a new grounds of rejection, the Examiner would like to respond to some of the Applicants' arguments in an attempt to further prosecution.

With respect to Claims 1-4, 6, 7, 9, 11-15 and 17-24, the Applicants argue the combination of Teicher et al and Roenker fail to disclose all of the claimed elements.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., measuring a response from each applied stimulus) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). The Applicants argue Teicher et al teach the application of multiple stimuli and instruct the patient to only apply to a certain stimulus, while the current invention measures a response from each applied stimulus. The current claim language does not support the Applicants' argument. The current claim language merely requires the presentation of a stimulus, masking the stimulus, and measuring a response from the user. Teicher et al clearly disclose the application of a stimulus to a

user, and measuring a response from the user based on the stimulus applied. The current claim language does not require measuring a response from the user based on each stimulus.

The Applicants further argue Roenker fail to overcome the deficiencies of Teicher et al, particularly because Roenker allegedly teaches a perception test and not a cognitive test. The Examiner respectfully disagrees. Merriam-Webster's Online dictionary defines perception as: "quick, acute, intuitive cognition". Therefore, Roenker does disclose a cognitive test, and is combinable with the art of Teicher et al to teach the deficiencies as shown above.

With respect to Teicher et al and Roenker not teaching a mask comprising at least one filled circle, and the "unpredicted advantages" that derive from the use of a mask having at least one filled circle, the Examiner would like to direct the Applicants' attention to the above rejections utilizing the new art of Jiang et al from 2001, which clearly disclose a mask comprised of at least one filled circle.

With regard to Claims 2-4, 6, 7, 11-15, 17, 19, 21, 23 and 24, the Applicants argue the prior art fail to teach all of the claimed elements. With respect to Claims 4 and 6, the Applicants argue Teicher et al do not teach the claimed limitation since Teicher et al teach measuring the percentage of correct responses, while the claim discloses measuring the percentage of incorrect answers. The Examiner respectfully disagrees. One of ordinary skill in the art would be able to deduce from the percentage of correct answers, the percentage of incorrect answers. For instance, if the patient has an 80% success rate at identifying the test stimulus, the patient also has a 20% failure rate at

identifying the test stimulus. Therefore, one of ordinary skill in the art would have been able to determine from the percentage of correct answers in Teicher et al, the percentage of incorrect answers, as currently claimed. The Applicants also argue Teicher et al also fail to disclose calculating mean percentages for each test stimulus, and instead calculates a mean percentage for all of the test stimuli. Per the current claim language, one of ordinary skill in the art can interpret the claim as calculating a mean error rate for more than one response. For instance, a "mean error rate" is nothing more than the average error rate based on the number of inputs. It appears the Applicants are stating a mean error rate is calculated for a single test stimulus. One of ordinary skill in the art would be able to determine that there is not any "mean error rate" for a single input. Therefore Teicher et al still disclose the claimed elements of Claims 4 and 6.

With respect to Claim 7, the Applicants argue Teicher et al do not disclose the calculation of a means response time for each stimulus, and instead calculate a single mean response time for all responses. The Examiner respectfully disagrees. Per the current claim language, the claim requires the calculation of a mean response time for each test stimulus. As discussed above, with respect to the definition of the term "mean", the "mean response time" is defined as the average response time for all responses. The Applicants are attempting to argue the "mean response time" is not the average response time for a number of responses, but for a single response. One of ordinary skill in the art would be able to determine that there is not any "mean response

time" for a single response. Therefore Teicher et al still disclose the claimed elements of Claim 7.

With respect to Claim 14, as shown above, it would have been obvious to one of ordinary skill in the art to apply each stimulus an equal number of times, since not presenting each stimulus an equal number of times would not provide an accurate representation of the person's cognitive abilities during the diagnostic test. Furthermore, an inaccurate representation of a person's cognitive abilities would create a false diagnosis.

With respect to Claim 11, the Applicants argue the combination of Teicher et al and Roenker fail to disclose the claimed range of 10-300ms, and further argue Roenker only disclose at most a lower limit of 17ms to over 300ms. The Examiner would like to respectfully state the prior art of Roenker discloses a range of exposure times well within the claimed 10-300ms range, thus constituting a claimed range within a known range. Furthermore, the claim only requires an exposure duration between 10-300ms. The claim does not require a range of 10-16ms. Therefore Roenker does disclose the claimed range.

With respect to Claim 5, the Applicants argue Hongo et al teach away from the claimed matter in Claim 5. In particular, Hongo et al teach a graph showing the percentage correct and the onset of masking, while the claim discloses an error rate relative to the test stimulus exposure duration. The Examiner respectfully disagrees. As discussed above with reference to determining the percentage incorrect from the percentage correct, one of ordinary skill in the art would have been able to determine

from Figure 11 in Hongo et al the percentage of incorrect answers. Furthermore, the onset of masking varied (the time when the mask was applied), thus one of ordinary skill in the art can also deduce from the graph the stimulus exposure duration (0-65.99ms, 0-133.99ms and 0-199.99ms). Therefore Hongo et al does teach the claimed limitations of Claim 5.

With respect to Claims 8 and 25, the Applicants argue Harrison et al fail to overcome the deficiencies of Teicher et al and Roenker to teach the claimed elements of Claims 8 and 25.

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

In response to applicant's argument that the prior art of Harrison et al is nonanalogous art, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, Harrison et al teach measured data can be graphed in

such a manner to allow a person to analyze the data. For instance, Harrison et al show a response time can be graphed in a manner to allow a person to determine the efficacy of a stimulus (in this case a type of font).

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Teicher et al and Roenker (as well as Jiang et al) teach a method of applying a stimulus and gathering data from the patient, and analyzing the data. Harrison et al show the data can be graphed for analysis.

With respect to Claim 10, the Applicants argue Teicher et al, Roenker and Polat et al fail to disclose the claimed elements of Claim 10.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Teicher et al and



Roenker disclose a means for presenting a plurality of stimuli and developing a user profile to compare to a reference profile. Polat et al teach the use of a reference group comprised of normal individuals.

With regards to Claims 1-3, 9-15 and 17-24, the Applicants argue the combination of Polat et al and Roenker fail to disclose all of the claimed limitations.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Polat et al disclose the application of a stimulus for measuring visual perception, removing the stimulus and measuring a response from the patient, creating a user profile and comparing the user profile to a reference profile. Roenker discloses a visual attention test and further discloses the use of a mask in place of the test image. One of ordinary skill in the art would have been able to substitute the removal of the test image (a blank screen) with a mask (a non-related image or shape) and still be capable of performing a visual perception test.

The Applicants further argue the differences between the combination and the current claims, with respect to a perception test and a cognitive test. See above response regarding the Applicants' arguments.

With respect to Claims 4, 6 and 7, the Applicants argue the combination of Polat et al, Roenker and Teicher et al fail to disclose the claimed limitations. See above response with regards to Claims 4, 6 and 7 as taught by Teicher et al.

With respect to Claim 5, the Applicants argue the combination of Polat et al, Roenker and Hongo et al fail to disclose the claimed limitations. See above response with regards to Claim 5 as taught by Hongo et al.

With respect to Claim 8, the Applicants argue the combination of Polat et al, Roenker, Teicher et al and Harrison et al fail to disclose all of the claimed limitations. See above response with regards to Claim 8 as taught by Harrison et al.

With respect to Claim 25, the Applicants argue the combination of Polat et al, Roenker and Harrison et al fail to disclose all of the claimed limitations. See above response with regards to Claim 25 as taught by Harrison et al.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian Szmaj who's telephone number is (571)272-4733. The examiner can normally be reached on Monday-Friday, with second Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Max Hindenburg can be reached on (571) 272-4726. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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/Brian Szmal/  
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